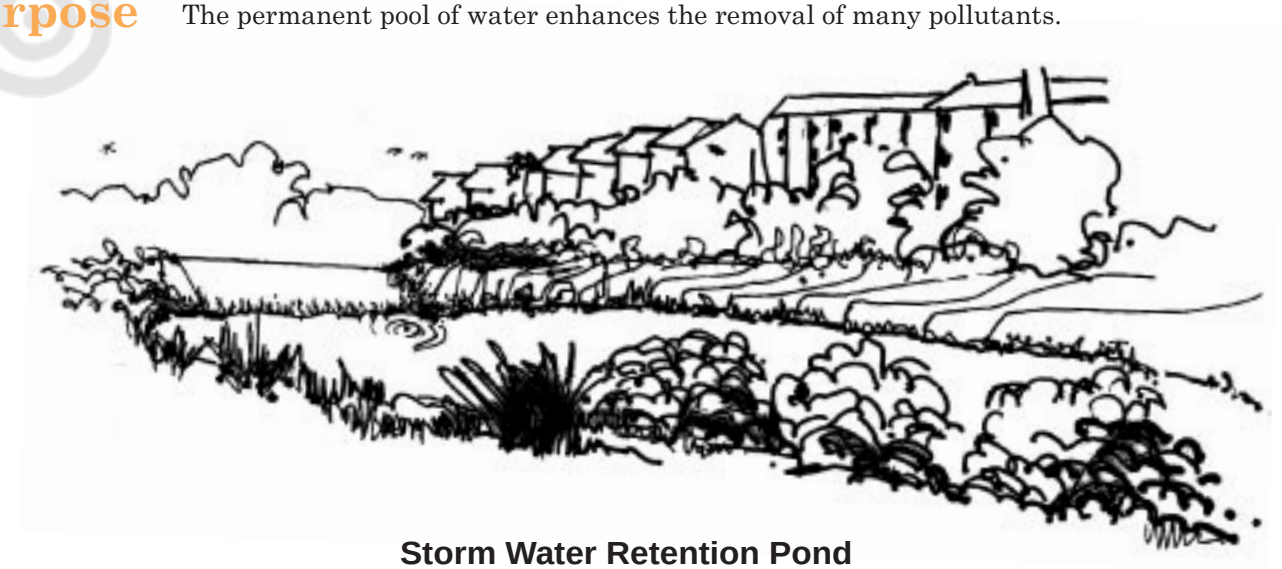
PRIMARY USE: Provide storm water flow controland improve water quality.
ADDITIONAL USES: Used for groundwater recharge.

STORM WATER RETENTION POND

What is it? Wet retention ponds maintain a permanent pool of water in addition to temporarily detaining stormwater. These ponds fill with stormwater and release most of it over a period of a few days, slowly returning to its normal depth of water. Also known as Wet Retention Pond.

Purpose

The permanent pool of water enhances the removal of many pollutants.



Storm Water Retention Pond
Perspective View

Limitations

Wet retention basins may contribute to thermal pollution and cause down stream warming. This may preclude their use in areas where sensitive aquatic species live. Wet ponds are not well suited to very small developments because of their large size. Wet ponds may flood prime wildlife habitat, and there are sometimes problems with nuisance odors, algae blooms and rotting debris when the ponds are not properly maintained. Wetland plants may need to be harvested or removed periodically to prevent releasing plant nutrients into the water when the plants die. The pool of water presents an attractive play area to children; hence, there may be safety problems. The maintenance costs of wet ponds are estimated at 3-5% of construction cost per year. Wet ponds require regular inspection, removal of sediment according to a regular schedule of maintenance, regular mowing, and regular cleaning and repair of inlets and outlets. Operators of wet ponds must control nuisance insects, weeds, odors, and algae; inspect and repair pond bottoms; and harvest deciduous vegetation prior to the onset of fall as necessary.

Materials

Suitable land area and earth moving equipment.

Installation

Wet ponds should be designed to displace the older stormwater with the newer stormwater, winch ensures the proper amount of holding time. Basic considerations for installation are location, the inflow runoff volume, hydraulic residence time, permanent pool size and maintenance. Volumes of stormwater runoff and normal discharge available for the permanent pool must be calculated by trained hydrologists before constructing a wet pond. Long, narrow ponds or wedge-shaped ponds are preferred shapes to minimize short-circuiting of storm flows. Marsh plants around the pond help remove pollutants, provide habitat and hide debris.

Source: NRCS Planning and Design Manual, NRCS.